PATENT

Attorney Docket No. SIC-03-024

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of:

KOUJI OOHARA

Application No.: 10/604,813

Filed: August 19, 2003

For: POWER STABILIZING APPARATUS FOR A BICYCLE ELECTRICAL COMPONENT

Examiner: Dru M. Parries

Art Unit: 2836

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

This is an appeal brief for the above-captioned matter.

I. Real Party In Interest

The assignee and real party in interest is Shimano, Inc., a Japanese corporation having a principal place of business in Osaka, Japan.

II. Related Appeals And Interferences

There are no prior or pending appeals, interferences or judicial proceedings known to the appellant, to appellant's legal representative, or to the assignee which may be related to, directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. Status Of Claims

Claims 28-48 are pending under final rejection and are under appeal. Claims 1-27 have been canceled.

IV. Status Of Amendments

No amendment was filed subsequent to final rejection.

V. Summary Of Claimed Subject Matter

The application discloses an apparatus for stabilizing power to a bicycle component. Cited reference numbers and text are examples only and are not intended to be limiting. Line numbers refer to the line numbers within each individually cited paragraph.

As applied to independent claim 28, a bicycle electrical control apparatus comprises:

a programmed power/control circuit ((35), Fig. 3, page 4, paragraph [0015], lines 1-2) that receives power from a power supply ((19), Fig. 3, pages 3-4, paragraph [0014], lines 7-9) and outputs a composite signal having a power signal component and a control signal component (pages 4-5, paragraph [0016], lines 1-3), wherein the control signal component contains information such that the composite signal can be decoded to extract the information contained in the control signal component (pages 4-5, paragraph [0016], lines 4-7);

a first electrical bicycle component ((55), Fig. 3, page 5, paragraph [0018], lines 1-3) that receives the composite signal and is controlled by the information contained in the control signal component of the composite signal (pages 4-5, paragraph [0016], lines 4-7);

a second electrical bicycle component ((58), Fig. 3, page 5, paragraph [0018], lines 2-3) that receives the composite signal but is not controlled by the control signal component of the composite signal (page 6, paragraph [0021], lines 5-11); and

a power stabilizing circuit ((57), page 5, paragraph [0018], lines 2-3) that receives the composite signal, stabilizes power provided from the composite signal, and provides stabilized power to the second electrical bicycle component (page 6, paragraph [0021], lines 11-14).

VI. Grounds of Rejection to be Reviewed on Appeal

Claims 28-32, 34-39, 41-46 and 48 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Spencer, et al (US 6,047,230) in view of Tarpenning, et al (US 6,181,344), Admitted Prior Art, and Schwaller (US 5,247,430).

Claims 33 and 47 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Spencer, et al, Tarpenning, et al, Admitted Prior Art, and Schwaller view of and Gohda (US 4,609,982).

Claim 40 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Spencer, et al, Tarpenning, et al, Admitted Prior Art, and Schwaller in view of and Tomita (JP 07-229,909).

VII. Argument

Rejection under 35 U.S.C. §103(a) over Spencer, et al in view of Tarpenning, et al, Admitted Prior Art, and Schwaller.

Claims 28-32, 34-38, 41-46, and 48

Spencer, et al discloses an automatic bicycle transmission wherein a controller (21) receives power from a power supply (30) and receives information signals from various input components (e.g., 23-28 and 32-33). Controller (21) processes the signals from the various input components and determines when to provide signals to a shifter motor (29) that changes gears in the bicycle transmission. Controller (21) also provides signals to a display (31) that displays various information.

Tarpenning, et al discloses a touch-sensitive display (34, Fig. 2) that includes a touch screen (74) which is mounted on top of an LCD display (76). As stated at column 6, lines 2-4, the LCD display (76) is equipped with a backlight (not shown) which can be turned ON and OFF using a power button (36).

The Appellant states at page 1, paragraph [0003], lines 1-3 of the specification that technology for communicating power and control signals using integrated or composite signals has

been developed to reduce the number of wires required between the various electrical components. That statement constitutes the Admitted Prior Art.

Schawaller discloses a bicycle lighting system wherein a switching controller ((1), Figs. 1 and 2) regulates the voltage from an alternating current generator (G) and provides the regulated voltage to lamps R_L and V_L. As shown in Fig. 2, switching controller (1) uses an oscillator (11) and an operational amplifier (4) to produce ON/OFF pulses having the variable duty-ratio shown in Fig. 3. An L-C circuit shown in Fig. 2 and described at column 3, lines 53-54 is used to convert the pulses into a direct current signal supplied to lamps R_L and V_L.

Page 4, lines 5-7 of the final office action dated July 1, 2008 (hereinafter "final office action") state that Spencer, et al teaches its gear shift driving component (29) having a CPU for decoding the information in the control signals and shifting gears in response to the decoded control signals. However, Spencer, et al's gear shift driving component (29) does *not* have a CPU. The detailed structure of gear shift driving component (29) is shown in Fig. 13A, and it is clear that gear shift driving component (29) does not have a CPU.

Furthermore, claim 28 requires a *composite* signal to be *decoded to extract* the information contained in the control signal component. Spencer, et al does not disclose composite signals, and Spencer, et al does not decode any signal because there is no translation anywhere from code into an original language or form. Additionally, Spencer, et al does not extract anything because there is no separation of any particular signal from a mixture of signals.

Page 4, lines 10-14 of the final office action allege that it would have been obvious to implement Tarpenning, et al's LCD display with backlight into Spencer, et al's invention as first (display) and second (backlight) electrical bicycle components so that a user could be able to read the display at night. The examiner concedes that the backlight of the LCD display doesn't receive any control signals, just power signals to turn the light ON and OFF.

Page 4, lines 18-22 of the final office action allege that it would have been obvious to use composite signals to supply both power and control signals to the first bicycle components to reduce

the number of wires throughout the system. The examiner concedes that doing so would require all of those first bicycle components to have CPUs to receive and decode the composite signal.

While the applicant admitted that technology for communicating power and control signals using integrated or composite signals has been developed to reduce the number of wires required between the various electrical components, any benefits of reducing wires must be balanced against the additional cost of providing a CPU for each component plus the additional cost of the manpower to program each CPU to decode the composite signal and extract the relevant control signals. Rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR International Co. v. Teleflex Inc.* 550 U.S. __, 82 USPQ2d 1385, 1396 (2007). No rational underpinning was provided as to why one would believe that any wire saving in the Spencer, et al system would offset the increased cost of an additional CPU for each component.

Even more importantly, however, is the lack of any discussion of any reason to provide a composite signal to the backlight that was interpreted to satisfy the second electrical bicycle component requirement of claim 28. As noted above, the examiner admits that Tarpenning, et al's backlight doesn't receive any control signals, just power signals to turn the light on and off. The examiner further agrees at page 3, numbered paragraph 3 of the final office action that lamps and uncontrolled devices don't need composite signals. The only discussion of composite signals being applied to the second electrical bicycle component appears at page 5, lines 6-11 of the final office action, wherein it is alleged that it would have been obvious to implement Schwaller's power stabilizing circuit into Spencer's invention to *receive* the composite signal and output a stable and correct amount of power to all of the second electrical bicycle components (i.e., the backlight of the LCD display) so that no lights will blowout due to overvoltage. However, Schwaller does not use composite signals anywhere, and certainly not as an input to switching controller (1).

Even if one were to use Schwaller's power stabilizing circuit to stabilize the power to a backlight in Spencer, et al's system, the result would not read on claim 28 because, as conceded by the examiner, the backlight does not use control signals. Thus, there is no disclosure or suggestion anywhere of "a second electrical bicycle component *that receives the composite signal* but is not

controlled by the control signal component of the composite signal" or "a power stabilizing circuit that *receives the composite signal*, stabilizes power provided from the composite signal, and provides stabilized power to the second electrical bicycle component" as required by claim 28, so a *prima facie* case of obviousness has not been set forth.

Claim 39

Page 6, lines 5-6 of the final office action states that Spencer, et al teaches the control signal component to the display (31) comprising a speed indicating signal. However, Figs. 11 and 14 of Spencer, et al show the signals input to display (31), and none of those signals comprise speed indicating signals. Even more importantly, however, is that Spencer, et al neither discloses nor suggests a *composite* signal having a power signal component and a control signal component as required by claim 28, so Spencer, et al cannot be said to disclose or suggest a speed indicating signal that is part of such a composite signal. Thus, there is no apparent reason to make a control signal component of a composite signal (from claim 28) to comprise a speed indicating signal as recited in claim 39.

Rejection under 35 U.S.C. §103(a) over Spencer, et al, Tarpenning, et al, Admitted Prior Art, and Schwaller view of Gohda.

Claims 33 and 47

It is respectfully submitted that claims 33 and 47 derive patentability from their combination with their respective parent claims.

Rejection under 35 U.S.C. §103(a) over Spencer, et al, Tarpenning, et al, Admitted Prior Art, and Schwaller in view of Tomita.

Claim 40

Claim 40 recites "wherein the power/control circuit includes a waveform shaping circuit that derives the speed indicating signal from the output of an alternating current generator." Tomita discloses a waveform shaping circuit (13) that generates speed indicating signals. Those signals are

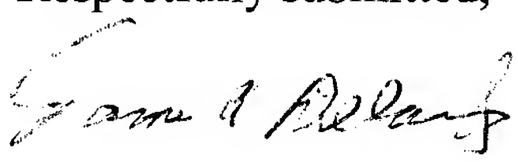
input to a microcomputer (14), and microcomputer (14) uses the signals to calculate the speed of the bicycle. The speed so calculated is displayed on a display (15).

Page 7, lines 2-6 of the final office state that it would have been obvious to implement Tomita's waveform shaping circuit into the modified Spencer, et al invention since Spencer, et al is silent as to how the speed indicating signal is derived and Tomita teaches a method known in the art that would allow for accurate control of the gear shifting driving component via his speedometer and waveform shaping circuit.

As noted above, Tomita discloses the use of a waveform shaping circuit (13) to generate speed indicating signals, and microcomputer (14) calculates bicycle speed from the speed indicating signals. The speed so calculated is displayed on a display (15). Tomita's microcomputer (14) does not output the shaped signals from waveform shaping circuit (13) as control signals, and there is no reason for Spencer, et al's controller (21) to output waveform-shaped signals to display (31) or to shifter motor (29).

Furthermore, a display is not a gear shift driving component, displays are not used to control gear shift driving components, and Tomita does not use the signals from waveform shaping circuit (13) to operate a gear shift driving component. Thus, the statement that Tomita's system "would allow for accurate control of the gear shift driving component via his speedometer and waveform shaping circuit" is a *non sequitur*.

Respectfully submitted,



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VIII. CLAIMS APPENDIX

CLAIM 28. A bicycle electrical control apparatus comprising:

a programmed power/control circuit that receives power from a power supply and outputs a composite signal having a power signal component and a control signal component, wherein the control signal component contains information such that the composite signal can be decoded to extract the information contained in the control signal component;

a first electrical bicycle component that receives the composite signal and is controlled by the information contained in the control signal component of the composite signal;

a second electrical bicycle component that receives the composite signal but is not controlled by the control signal component of the composite signal; and

a power stabilizing circuit that receives the composite signal, stabilizes power provided from the composite signal, and provides stabilized power to the second electrical bicycle component.

CLAIM 29. The apparatus according to claim 28 wherein the power/control circuit comprises a CPU.

CLAIM 30. The apparatus according to claim 28 wherein the control signal has a pulse component.

CLAIM 31. The apparatus according to claim 30 wherein the control signal has an ON component and an OFF component.

CLAIM 32. The apparatus according to claim 28 wherein the power stabilizing circuit comprises a capacitor.

CLAIM 33. The apparatus according to claim 32 wherein the power stabilizing circuit further comprises a diode coupled to prevent reverse current from the second electrical bicycle component to the power/control circuit.

CLAIM 34. The apparatus according to claim 28 wherein the power/control circuit is structured to derive the power signal component from an alternating current source.

CLAIM 35. The apparatus according to claim 34 wherein the power/control circuit is structured to derive the power signal component from a dynamo hub mounted to one of a front wheel or a rear wheel of the bicycle.

CLAIM 36. The apparatus according to claim 28 wherein the power/control circuit is structured to derive the power signal component from a direct current source.

CLAIM 37. The apparatus according to claim 36 wherein the power/control circuit is structured to derive the power signal component from a battery.

CLAIM 38. The apparatus according to claim 28 wherein the power stabilizing circuit stabilizes the power provided from the power signal component to the second electrical bicycle component but not to the first electrical bicycle component.

CLAIM 39. The apparatus according to claim 28 wherein the control signal component comprises a speed indicating signal.

CLAIM 40. The apparatus according to claim 39 wherein the power/control circuit includes a waveform shaping circuit that derives the speed indicating signal from the output of an alternating current generator.

CLAIM 41. The apparatus according to claim 28 wherein the first electrical bicycle component comprises a liquid crystal display component structured to display various data, and wherein the second electrical bicycle component comprises a backlight that illuminates the liquid crystal display component.

CLAIM 42. The apparatus according to claim 28 wherein the first electrical bicycle component comprises a gear shift driving component that drives a gear shift mechanism having a plurality of gear ratios.

CLAIM 43. The apparatus according to claim 42 wherein the second electrical bicycle component comprises a light.

CLAIM 44. The apparatus according to claim 28 wherein the power stabilizing circuit stabilizes a voltage provided to the second electrical bicycle component.

CLAIM 45. The apparatus according to claim 44 wherein the power stabilizing circuit comprises a power storage device coupled in parallel with the second electrical bicycle component.

CLAIM 46. The apparatus according to claim 45 wherein the power storage device comprises a capacitor.

CLAIM 47. The apparatus according to claim 46 wherein the power stabilizing circuit further comprises a diode coupled to prevent reverse current from the capacitor to the power/control circuit.

CLAIM 48. The apparatus according to claim 28 wherein the first electrical bicycle component comprises a CPU that receives the composite signal and is controlled by the control signal component of the composite signal.

IX. EVIDENCE APPENDIX

1) U.S. Patent No. 6,047,230 issued to Spencer, et al and entered into the record by the examiner in the office action dated June 20, 2006.

2) U.S. Patent No. 5,247,430 issued to Schwaller and entered into the record by the examiner in the office action dated October 5, 2005.

3) U.S. Patent No. 4,609,982 issued to Gohda and entered into the record by the examiner in the office action dated October 5, 2005.

4) Japanese Patent Publication No. 07-229,909 naming Tomita and entered into the record by the examiner in the office action dated December 27, 2006.

5) U.S. Patent Application Publication No. 2002/0014366 naming Turner and entered into the record by the examiner in the office action dated October 5, 2005.

X. RELATED PROCEEDINGS APPENDIX

None